In the claims:

All claims being examined, whether or not amended, are presented below.

46. **(Currently Amended)** A method for assessing the ability of an agent to interfere with blood vessel formation, comprising:

(a) combining:

(1) a first polypeptide including at least a portion of an Ephrin ligand that is selectively expressed on one of either venous or arterial cells and that interacts with an Eph receptor,

(2) a second polypeptide including at least a portion of the Eph receptor that is selectively expressed on one of either arterial or venous cells and that interacts with said Ephrin ligand, ~~said Ephrin ligand and/or Eph receptor being selected on the basis of being selectively expressed on one of either venous or arterial cells,~~ and

(3) an agent,

under conditions wherein said at least a portion of an Eph receptor and said at least a portion of an Ephrin ligand ~~portions of~~ interact in the absence of said agent;

(b) determining if said agent interferes with said interaction; and

(c) for an agent that interferes with said interaction, further assessing the ability of said agent to interfere with blood vessel formation.

47. **(Currently Amended)** A method for identifying an agent that inhibits interaction of EphrinB2 and EphB4, comprising:

(a) combining:

(1) an EphrinB2 protein or at least a portion thereof sufficient to interact with an EphB4 protein,

(2) the EphB4 protein or at least a portion thereof sufficient to interact with said EphrinB2 protein, and

(3) an agent,

under conditions appropriate for interaction between said EphrinB2 and EphB4 proteins in the absence of said agent;

(b) determining the extent to which said EphrinB2 and EphB4 proteins interact; ~~and~~

(c) comparing the extent of interaction determined in (b) with the extent to which interaction of said EphrinB2 and EphB4 proteins occurs in the absence of the agent;

wherein if the extent to which interaction of said EphrinB2 and EphB4 proteins is less in the presence of the agent than in the absence of the agent, the agent is one which inhibits interaction of EphrinB2 and EphB4; and

(d) for an agent that inhibits said interaction, further assessing the ability of said agent to interfere with blood vessel formation.

49. (**Currently Amended**) A method for identifying an agent that enhances interaction of an Ephrin ligand and an Eph receptor, comprising:

(a) combining:

(1) a first polypeptide including at least a portion of an Ephrin ligand that is selectively expressed one of either venous or arterial cells and that interacts with an Eph receptor,

(2) a second polypeptide including at least a portion of the Eph receptor that is selectively expressed in one of either arterial or venous cells and that interacts with said Ephrin ligand, ~~said Ephrin ligand and/or Eph receptor being selected on the basis of being selectively expressed on one of either venous or arterial cells,~~ and

(3) an agent,

under conditions wherein said at least a portion of an Eph receptor and said at least a portion of an Ephrin ligand ~~portions of~~ interact in the absence of said agent;

(b) determining the extent to which said first and second polypeptides interact; and

(c) comparing the extent of interaction determined in (b) with the extent to which interaction of said first and second polypeptides occurs in the absence of the agent;

wherein if the extent to which interaction of said first and second polypeptides is greater in the presence of the agent than in the absence of the agent, the agent is one which enhances interaction of an Ephrin ligand and Eph receptor; and

(d) for an agent that enhances said interaction, further assessing the ability of said agent to enhance blood vessel formation.

50. (**Currently Amended**) A method for identifying an agent that enhances interaction of EphrinB2 and EphB4, comprising:

(a) combining:

(1) an EphrinB2 protein or at least a portion thereof sufficient to interact with an EphB4 protein,

(2) the EphB4 or at least a portion thereof sufficient to interact with said EphrinB2 protein, and

(3) an agent,

under conditions appropriate for interaction between said EphrinB2 and EphB4 proteins in the presence of said agent;

(b) determining the extent to which said EphrinB2 and EphB4 proteins interact; ~~and~~

(c) comparing the extent of interaction determined in (b) with the extent to which interaction of said EphrinB2 and EphB4 proteins occurs in the absence of the agent;

wherein if the extent to which interaction of said EphrinB2 and EphB4 proteins is greater in the presence of the agent than in the absence of the agent, the agent is one which enhances interaction of EphrinB2 and EphB4; and

(d) for an agent that enhances said interaction, further assessing the ability of said agent to enhance blood vessel formation.

77. (**Previously Presented**) The method of Claim 46 or 49, wherein

(a) the first polypeptide is selected from the group consisting of a soluble extracellular portion of said Ephrin ligand and a fusion protein including an extracellular portion of said Ephrin ligand; and/or

(b) the second polypeptide is selected from the group consisting of a soluble extracellular portion said Eph receptor and a fusion protein including an extracellular portion of said Eph receptor.

78. (**Previously Presented**) The method of Claim 46 or 49, wherein the interaction of said first and second polypeptides is determined by detecting binding of the first and second polypeptides , wherein at least one of the first and second polypeptides includes a detectable label.

79. (**Previously Presented**) The method of Claim 78 wherein the label is selected from the group consisting of a radioactive label, a fluorescent label and a colorimetric label.

80. (**Previously Presented**) The method of any of Claims 46, 47, 49, 50 and 151, wherein the agent is selected from the group consisting of a peptide, a polypeptide, a peptoid, a sugar, a hormone and a nucleic acid molecule.

81. (**Previously Presented**) The method of any of Claims 46, 47, 49, 50 and 151, wherein the agent is an organic compound.

82. (**Previously Presented**) The method of Claim 46 or 49, wherein

(a) the first polypeptide is expressed on a cell; and/or

(b) the second polypeptide is expressed on a cell.

83. (**Previously Presented**) The method of Claim 82, wherein

(a) the first polypeptide is expressed on an isolated arterial endothelial cell; and/or

(b) the second polypeptide is expressed on an isolated venous endothelial cell.

84. (**Previously Presented**) The method of Claim 46 or 49, wherein

(a) the Ephrin ligand is selected on the basis of being selectively expressed on arterial endothelial cells; and/or

(b) the Eph receptor is selected on the basis of being selectively expressed on venous endothelial cells.

85. (**Previously Presented**) The method of Claim 82, wherein

(a) the first polypeptide is expressed on a cell which has been genetically modified to recombinantly express the first polypeptide ; and/or

(b) the second polypeptide is expressed on a cell which has been genetically modified to recombinantly express the second polypeptide.

86. (**Previously Presented**) The method of Claim 46 or 49, wherein

(a) the first polypeptide is conjugated to a solid support and the second polypeptide is diffusible; or

(b) the second polypeptide is conjugated to a solid support and the first polypeptide is diffusible.

88. (**Previously Presented**) The method of Claim 47, 50 or 151, wherein the interaction between said EphrinB2 and EphB4 proteins is determined by detecting binding of the EphrinB2 and EphB4 proteins , wherein at least one of said EphrinB2 and EphB4 proteins includes a detectable label.

89. (**Previously Presented**) The method of Claim 88 wherein the label is selected from the group consisting of a radioactive label, a fluorescent label and a colorimetric label.

92. (**Previously Presented**) The method of Claim 47, 50 or 151, wherein

(a) the EphrinB2 protein is expressed on a cell; and/or

(b) the EphB4 protein is expressed on a cell.

93. (**Previously Presented**) The method of Claim 92, wherein

(a) the EphrinB2 protein is expressed on an isolated arterial endothelial cell; and/or

(b) the EphB4 protein is expressed on an isolated venous endothelial cell.

95. (**Previously Presented**) The method of Claim 92, wherein

(a) the EphrinB2 protein is expressed on a cell which has been genetically modified to recombinantly express the EphrinB2 protein ,

(b) the EphB4 protein is expressed on a cell which has been genetically modified to recombinantly express the EphB4 protein ; or

(c) both (a) and (b).

96. (**Previously Presented**) The method of Claim 47, 50 or 151, wherein

(a) the EphrinB2 protein is conjugated to a solid support and the EphB4 protein is diffusible; or

(b) the EphB4 protein is conjugated to a solid support and the EphrinB2 protein is diffusible.

97. (**Previously Presented**) The method of Claim 96 wherein the solid support in (a) or (b) is selected from the group consisting of a bead, column pore glass, a pin and the wall of a plate.

98. (**Previously Presented**) The method of Claim 47, 50 or 151, wherein at least one of said EphrinB2 protein and EphB4 protein is a fusion protein.

99. (**Previously Presented**) The method of Claim 98 wherein the fusion protein includes an Fc domain.

100. (**Previously Presented**) The method of Claim 98 wherein the fusion protein is soluble.

107. (**Previously Presented**) The method of Claim 47, 50 or 151, wherein

(a) the EphrinB2 protein is expressed on a cell; and

(b) the EphB4 protein is a soluble protein including an extracellular fragment of EphB4 which binds to the EphrinB2 protein.

108. **(Previously Presented)** The method of Claim 47, 50 or 151, wherein

(a) the EphrinB2 protein is a soluble protein including an extracellular fragment of EphrinB2 which binds to the EphB4 protein ; and

(b) the EphB4 protein is expressed on a cell which is contacted with said EphrinB2 protein and agent.

114. **(Previously Presented)** The method of Claim 46 or 49, wherein

(a) the first polypeptide is a soluble protein including an extracellular fragment of the Ephrin ligand which binds to the Eph receptor ;

(b) the second polypeptide is expressed on a cell which is contacted with said first polypeptide and agent.

120. **(Previously Presented)** The method of Claim 46 or 49, wherein

(a) the first polypeptide is expressed on a cell;

(b) the second polypeptide is a soluble protein including an extracellular fragment of the Eph receptor which binds to the Ephrin ligand.

151. **(Previously Presented)** A method for identify an agent having an anti-angiogenic activity

(a) combining

an EphrinB2 protein, or a portion thereof that interacts with EphB4, and

an EphB4 protein, or a portion thereof that interacts with EphrinB2,

wherein said EphrinB2 and EphB4 proteins interact to form a ligand-receptor complex;

(b) determining if a test agent can interfere with a function of said ligand-receptor complex; and

(c) for said test agent that interferes with said ligand-receptor complex, administering said agent to a nonhuman animal and measuring the anti-angiogenic activity, if any, of said agent.

152. **(Previously Presented)** The method of Claim 47, 50 or 151, wherein at least one of the EphrinB2 protein and EphB4 protein are expressed on cultured cells, and the agent is added to culture medium in which the cells are placed.

153. (**Previously Presented**) The method of Claim 46 or 49, wherein at least one of the first and second polypeptides are expressed on cultured cells, and the agent is added to culture medium in which the cells are placed.

154. (**Previously Presented**) The method of Claim 46, wherein the step of further assessing the ability of said agent to interfere with blood vessel formation includes administering said agent to a nonhuman animal and determining if the agent affects arterial or venous structures.

155. (**Previously Presented**) The method of Claim 46, wherein the step of further assessing the ability of said agent to interfere with blood vessel formation includes adding said agent to a cell culture containing arterial endothelial cells and venous endothelial cells and determining if the agent affects growth or differentiation of said cells.

156. (**Currently Amended**) A method for identify an agent having an anti-angiogenic activity comprising:

(a) contacting

cells expressing an EphB4 protein, which cells differentiate or maintain a venous phenotype in a manner dependent on the activity of the EphB4 protein, and

a test agent;

(b) determining if the agent can interfere with the ability of said EphB4 protein to transduce a signal that affects said venous phenotype; and

(c) administering, to a nonhuman animal, an agent identified in (b), and measuring the anti-angiogenic activity, if any, of said agent.

157. (**Currently Amended**) A method for identify an agent having an anti-angiogenic activity comprising:

(a) contacting

cells expressing an EphrinB2 protein, which cells differentiate or maintain an arterial phenotype in a manner dependent on the activity of the EphrinB2 protein, and

a test agent;

(b) determining if the agent can interfere with the ability of said EphrinB2 protein to transduce a signal that affects said arterial phenotype; and

(c) administering, to a nonhuman animal, an agent identified in (b), and measuring the anti-angiogenic activity, if any, of said agent.